

## SEQUENCE LISTING

<110> McCarthy, Sean A.  
Holtzman, Douglas A.  
Goodearl, Andrew D.J.

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PROGNOSTIC, DIAGNOSTIC, PREVENTIVE, THERAPEUTIC AND OTHER  
USES

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<151> 1998-08-04

<150> US 60/054,645

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<213> Homo sapiens

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Ala	Lys	Ser	Asn	Gly	Arg	Leu	Thr	Val	Phe	Pro	Asp	Gly	Thr	Leu	Glu			
			465			470						475						
gtg	cgc	tac	gcc	cag	gta	cag	gac	aac	ggc	acg	tac	ctg	tgc	atc	gcg	1609		
Val	Arg	Tyr	Ala	Gln	Val	Gln	Asp	Asn	Gly	Thr	Tyr	Leu	Cys	Ile	Ala			
480						485			490									
gcc	aac	gcg	ggc	ggc	aac	gac	tcc	atg	ccc	gcc	cac	ctg	cat	gtg	cgc	1657		
Ala	Asn	Ala	Gly	Gly	Asn	Asp	Ser	Met	Pro	Ala	His	Leu	His	Val	Arg			
495						500			505									
agc	tac	tcg	ccc	gac	tgg	ccc	cat	cag	ccc	aac	aag	acc	ttc	gct	ttc	1705		
Ser	Tyr	Ser	Pro	Asp	Trp	Pro	His	Gln	Pro	Asn	Lys	Thr	Phe	Ala	Phe			
510			515						520			525						
atc	tcc	aac																



gtg cct ttc ccc ttc gac atc aag acc ctc atc atc gcc acc acc atg 1801  
Val Pro Phe Pro Phe Asp Ile Lys Thr Leu Ile Ile Ala Thr Thr Met  
545 550 555

ggc ttc atc tct ttc ctg ggc gtc gtc ctc ttc tgc ctg gtg ctg ctg 1849  
Gly Phe Ile Ser Phe Leu Gly Val Val Leu Phe Cys Leu Val Leu Leu  
560 565 570

ttt ctc tgg agc cgg ggc aag ggc aac aca aag cac aac atc gag atc 1897  
Phe Leu Trp Ser Arg Gly Lys Gly Asn Thr Lys His Asn Ile Glu Ile  
575 580 585

gag tat gtg ccc cga aag tgc gac gca ggc atc agc tcc gcc gac gcg 1945  
Glu Tyr Val Pro Arg Lys Ser Asp Ala Gly Ile Ser Ser Ala Asp Ala  
590 595 600 605

ccc cgc aag ttc aac atg aag atg ata tgaggccggg gcgggggggca 1992  
Pro Arg Lys Phe Asn Met Lys Met Ile  
610

gggacccccg ggcggccggg caggggaagg ggcttgccg ccacctgctc actctccagt 2052  
ccttcccacc tcctccctac ccttctacac acgtttctctt tctccctcc cgcctccgtc 2112  
ccctgtgtgc ccccgccagc cctcaccacc tgccctcctt ctaccaggac ctcagaagcc 2172  
cagacctggg gacccacct acacaggggc attgacagac tggagttaa agccgacgaa 2232  
ccgacacgcg gcagagtcaa taattcaata aaaaagttac gaactttctc tgtaacttgg 2292  
gtttcaataa ttatggattt ttatgaaaac ttgaaataat aaaaaaaaaa aaaaaaaag 2351

<210> 4

<211> 614

<212> PRT

<213> Homo sapiens

<400> 4

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Trp Gln Pro Ile Leu Leu Leu Val Leu Gly Ser Val Leu Ser Gly Ser  
20 25 30  
Ala Thr Gly Cys Pro Pro Arg Cys Glu Cys Ser Ala Gln Asp Arg Ala  
35 40 45  
Val Leu Cys His Arg Lys Arg Phe Val Ala Val Pro Glu Gly Ile Pro  
50 55 60  
Thr Glu Thr Arg Leu Leu Asp Leu Gly Lys Asn Arg Ile Lys Thr Leu  
65 70 75 80  
Asn Gln Asp Glu Phe Ala Ser Phe Pro His Leu Glu Glu Leu Glu Leu  
85 90 95  
Asn Glu Asn Ile Val Ser Ala Val Glu Pro Gly Ala Phe Asn Asn Leu  
100 105 110  
Phe Asn Leu Arg Thr Leu Gly Leu Arg Ser Asn Arg Leu Lys Leu Ile  
115 120 125  
Pro Leu Gly Val Phe Thr Gly Leu Ser Asn Leu Thr Lys Leu Asp Thr  
130 135 140  
Arg Glu Asn Lys Ile Val Ile Leu Leu Asp Tyr Met Phe Gln Asp Leu  
145 150 155 160  
Tyr Asn Leu Lys Ser Leu Glu Val Gly Asp Asn Asp Leu Val Tyr Ile  
165 170 175  
Ser His Arg Ala Phe Ser Gly Leu Asn Ser Leu Glu Gln Leu Thr Leu

<210> 5

<211> 979  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (58)...(837)

<400> 5

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                                     Met
                                     1

gcg ggg tcg ccg ctg ctc tgg ggg ccg cgg gcc ggg ggc gtc ggc ctt      108
Ala Gly Ser Pro Leu Leu Trp Gly Pro Arg Ala Gly Gly Val Gly Leu
          5                      10                      15

ttg gtg ctg ctg ctg ctc ggc ctg ttt cgg ccg ccc ccc gcg ctc tgc      156
Leu Val Leu Leu Leu Leu Gly Leu Phe Arg Pro Pro Pro Ala Leu Cys
          20                      25                      30

gcg cgg ccg gta aag gag ccc cgc ggc cta agc gca gcg tct ccg ccc      204
Ala Arg Pro Val Lys Glu Pro Arg Gly Leu Ser Ala Ala Ser Pro Pro
          35                      40                      45

ttg gct gag act ggc gct cct cgc cgc ttc cgg cgg tca gtg ccc cga      252
Leu Ala Glu Thr Gly Ala Pro Arg Arg Phe Arg Arg Ser Val Pro Arg
          50                      55                      60                      65

ggt gag gcg gcg ggg gcg gtg cag gag ctg gcg cgg gcg ctg gcg cat      300
Gly Glu Ala Ala Gly Ala Val Gln Glu Leu Ala Arg Ala Leu Ala His
          70                      75                      80

ctg ctg gag gcc gaa cgt cag gag cgg gcg cgg gcc gag gcg cag gag      348
Leu Leu Glu Ala Glu Arg Gln Glu Arg Ala Arg Ala Glu Ala Gln Glu
          85                      90                      95

gct gag gat cag cag gcg cgc gtc ctg gcg cag ctg ctg cgc gtc tgg      396
Ala Glu Asp Gln Gln Ala Arg Val Leu Ala Gln Leu Leu Arg Val Trp
          100                     105                     110

ggc gcc ccc cgc aac tct gat ccg gct ctg ggc ttg gac gac gac ccc      444
Gly Ala Pro Arg Asn Ser Asp Pro Ala Leu Gly Leu Asp Asp Asp Pro
          115                     120                     125

gac gcg cct gca gcg cag ctc gct cgc gct ctg ctc cgc gcc cgc ctt      492
Asp Ala Pro Ala Ala Gln Leu Ala Arg Ala Leu Leu Arg Ala Arg Leu
          130                     135                     140                     145

gac cct gcc gcc cta gca gcc cag ctt gtc ccc gcg ccc gtc ccc gcc      540
Asp Pro Ala Ala Leu Ala Ala Gln Leu Val Pro Ala Pro Val Pro Ala
          150                     155                     160

gcg gcg ctc cga ccc cgg ccc ccg gtc tac gac gac ggc ccc gcg ggc      588
Ala Ala Leu Arg Pro Arg Pro Pro Val Tyr Asp Asp Gly Pro Ala Gly
          165                     170                     175

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ccg gat gct gag gag gca ggc gac gag aca ccc gac gtg gac ccc gag 636  
 Pro Asp Ala Glu Glu Ala Gly Asp Glu Thr Pro Asp Val Asp Pro Glu  
 180 185 190

ctg ttg agg tac ttg ctg gga cgg att ctt gcg gga agc gcg gac tcc 684  
 Leu Leu Arg Tyr Leu Leu Gly Arg Ile Leu Ala Gly Ser Ala Asp Ser  
 195 200 205

gag ggg gtg gca gcc ccg cgc cgc ctc cgc cgt gcc gcc gac cac gat 732  
 Glu Gly Val Ala Ala Pro Arg Arg Leu Arg Arg Ala Ala Asp His Asp  
 210 215 220 225

gtg ggc tct gag ctg ccc cct gag ggc gtg ctg ggg gcg ctg ctg cgt 780  
 Val Gly Ser Glu Leu Pro Pro Glu Gly Val Leu Gly Ala Leu Leu Arg  
 230 235 240

gtg aaa cgc cta gag acc ccg gcg ccc cag gtg cct gca cgc cgc ctc 828  
 Val Lys Arg Leu Glu Thr Pro Ala Pro Gln Val Pro Ala Arg Arg Leu  
 245 250 255

ttg cca ccc tgagcactgc ccggatcccg tgcaccctgg gacccagaag 877  
 Leu Pro Pro  
 260

tgccccgcc atcccgccac caggactgct ccccgccagc acgtccagag caacttacc 937  
 cggccagcca gccctctcac ccgaggatcc ctacccctg gc 979

<210> 6

<211> 260

<212> PRT

<213> Homo sapiens

<400> 6

Met Ala Gly Ser Pro Leu Leu Trp Gly Pro Arg Ala Gly Gly Val Gly  
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 Leu Leu Val Leu Leu Leu Gly Leu Phe Arg Pro Pro Pro Ala Leu  
 20 25 30  
 Cys Ala Arg Pro Val Lys Glu Pro Arg Gly Leu Ser Ala Ala Ser Pro  
 35 40 45  
 Pro Leu Ala Glu Thr Gly Ala Pro Arg Arg Phe Arg Arg Ser Val Pro  
 50 55 60  
 Arg Gly Glu Ala Ala Gly Ala Val Gln Glu Leu Ala Arg Ala Leu Ala  
 65 70 75 80  
 His Leu Leu Glu Ala Glu Arg Gln Glu Arg Ala Arg Ala Glu Ala Gln  
 85 90 95  
 Glu Ala Glu Asp Gln Gln Ala Arg Val Leu Ala Gln Leu Leu Arg Val  
 100 105 110  
 Trp Gly Ala Pro Arg Asn Ser Asp Pro Ala Leu Gly Leu Asp Asp Asp  
 115 120 125  
 Pro Asp Ala Pro Ala Ala Gln Leu Ala Arg Ala Leu Leu Arg Ala Arg  
 130 135 140  
 Leu Asp Pro Ala Ala Leu Ala Ala Gln Leu Val Pro Ala Pro Val Pro  
 145 150 155 160  
 Ala Ala Ala Leu Arg Pro Arg Pro Pro Val Tyr Asp Asp Gly Pro Ala  
 165 170 175  
 Gly Pro Asp Ala Glu Glu Ala Gly Asp Glu Thr Pro Asp Val Asp Pro  
 180 185 190

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<210> 7
<211> 714
<212> PRT
<213> Mus musculus
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Met 1	Ala	Arg	Leu	Ser 5	Thr	Gly	Lys	Ala	Ala 10	Cys	Gln	Val	Val	Leu 15	Gly
Leu	Leu	Ile	Thr	Ser	Leu	Thr	Glu	Ser	Ser	Ile	Leu	Thr	Ser	Glu	Cys
			20					25					30		
Pro	Gln	Leu	Cys	Val	Cys	Glu	Ile	Arg	Pro	Trp	Phe	Thr	Pro	Gln	Ser
		35					40					45			
Thr	Tyr	Arg	Glu	Ala	Thr	Thr	Val	Asp	Cys	Asn	Asp	Leu	Arg	Leu	Thr
	50					55					60				
Arg	Ile	Pro	Gly	Asn	Leu	Ser	Ser	Asp	Thr	Gln	Val	Leu	Leu	Leu	Gln
65					70					75					80
Ser	Asn	Asn	Ile	Ala	Lys	Thr	Val	Asp	Glu	Leu	Gln	Gln	Leu	Phe	Asn
			85						90					95	
Leu	Thr	Glu	Leu	Asp	Phe	Ser	Gln	Asn	Asn	Phe	Thr	Asn	Ile	Lys	Glu
			100					105					110		
Val	Gly	Leu	Ala	Asn	Leu	Thr	Gln	Leu	Thr	Thr	Leu	His	Leu	Glu	Glu
		115					120					125			
Asn	Gln	Ile	Ser	Glu	Met	Thr	Asp	Tyr	Cys	Leu	Gln	Asp	Leu	Ser	Asn
	130					135					140				
Leu	Gln	Glu	Leu	Tyr	Ile	Asn	His	Asn	Gln	Ile	Ser	Thr	Ile	Ser	Ala
145					150					155					160
Asn	Ala	Phe	Ser	Gly	Leu	Lys	Asn	Leu	Leu	Arg	Leu	His	Leu	Asn	Ser
				165					170					175	
Asn	Lys	Leu	Lys	Val	Ile	Asp	Ser	Arg	Trp	Phe	Asp	Ser	Thr	Pro	Asn
			180					185					190		
Leu	Glu	Ile	Leu	Met	Ile	Gly	Glu	Asn	Pro	Val	Ile	Gly	Ile	Leu	Asp
		195					200					205			
Met	Asn	Phe	Arg	Pro	Leu	Ser	Asn	Leu	Arg	Ser	Leu	Val	Leu	Ala	Gly
	210						215					220			
Met	Tyr	Leu	Thr	Asp	Val	Pro	Gly	Asn	Ala	Leu	Val	Gly	Leu	Asp	Ser
225				230						235					240
Leu	Glu	Ser	Leu	Ser	Phe	Tyr	Asp	Asn	Lys	Leu	Ile	Lys	Val	Pro	Gln
				245					250					255	
Leu	Ala	Leu	Gln	Lys	Val	Pro	Asn	Leu	Lys	Phe	Leu	Asp	Leu	Asn	Lys
			260					265					270		
Asn	Pro	Ile	His	Lys	Ile	Gln	Glu	Gly	Asp	Phe	Lys	Asn	Met	Leu	Arg
		275					280					285			
Leu	Lys	Glu	Leu	Gly	Ile	Asn	Asn	Met	Gly	Glu	Leu	Val	Ser	Val	Asp
	290					295					300				
Arg	Tyr	Ala	Leu	Asp	Asn	Leu	Pro	Glu	Leu	Thr	Lys	Leu	Glu	Ala	Thr
305					310						315				320

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Asn Asn Pro Lys Leu Ser Tyr Ile His Arg Leu Ala Phe Arg Ser Val
      325                      330                      335
Pro Ala Leu Glu Ser Leu Met Leu Asn Asn Asn Ala Leu Asn Ala Val
      340                      345                      350
Tyr Gln Lys Thr Val Glu Ser Leu Pro Asn Leu Arg Glu Ile Ser Ile
      355                      360                      365
His Ser Asn Pro Leu Arg Cys Asp Cys Val Ile His Trp Ile Asn Ser
      370                      375                      380
Asn Lys Thr Asn Ile Arg Phe Met Glu Pro Leu Ser Met Phe Cys Ala
385                      390                      395                      400
Met Pro Pro Glu Tyr Arg Gly Gln Gln Val Lys Glu Val Leu Ile Gln
      405                      410                      415
Asp Ser Ser Glu Gln Cys Leu Pro Met Ile Ser His Asp Thr Phe Pro
      420                      425                      430
Asn His Leu Asn Met Asp Ile Gly Thr Thr Leu Phe Leu Asp Cys Arg
      435                      440                      445
Ala Met Ala Glu Pro Glu Pro Glu Ile Tyr Trp Val Thr Pro Ile Gly
      450                      455                      460
Asn Lys Ile Thr Val Glu Thr Leu Ser Asp Lys Tyr Lys Leu Ser Ser
465                      470                      475                      480
Glu Gly Thr Leu Glu Ile Ala Asn Ile Gln Ile Glu Asp Ser Gly Arg
      485                      490                      495
Tyr Thr Cys Val Ala Gln Asn Val Gln Gly Ala Asp Thr Arg Val Ala
      500                      505                      510
Thr Ile Lys Val Asn Gly Thr Leu Leu Asp Gly Ala Gln Val Leu Lys
      515                      520                      525
Ile Tyr Val Lys Gln Thr Glu Ser His Ser Ile Leu Val Ser Trp Lys
      530                      535                      540
Val Asn Ser Asn Val Met Thr Ser Asn Leu Lys Trp Ser Ser Ala Thr
545                      550                      555                      560
Met Lys Ile Asp Asn Pro His Ile Thr Tyr Thr Ala Arg Val Pro Val
      565                      570                      575
Asp Val His Glu Tyr Asn Leu Thr His Leu Gln Pro Ser Thr Asp Tyr
      580                      585                      590
Glu Val Cys Leu Thr Val Ser Asn Ile His Gln Gln Thr Gln Lys Ser
      595                      600                      605
Cys Val Asn Val Thr Thr Lys Thr Ala Ala Phe Ala Leu Asp Ile Ser
      610                      615                      620
Asp His Glu Thr Ser Thr Ala Leu Ala Ala Val Met Gly Ser Met Phe
625                      630                      635                      640
Ala Val Ile Ser Leu Ala Ser Ile Ala Ile Tyr Ile Ala Lys Arg Phe
      645                      650                      655
Lys Arg Lys Asn Tyr His His Ser Leu Lys Lys Tyr Met Gln Lys Thr
      660                      665                      670
Ser Ser Ile Pro Leu Asn Glu Leu Tyr Pro Pro Leu Ile Asn Leu Trp
      675                      680                      685
Glu Ala Asp Ser Asp Lys Asp Lys Asp Gly Ser Ala Asp Thr Lys Pro
      690                      695                      700
Thr Gln Val Asp Thr Ser Arg Ser Tyr Tyr
705                      710

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&lt;210&gt; 8

&lt;211&gt; 608

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 8

Thr	Arg	Pro	Ile	Leu	Val	Ile	His	Asp	Glu	Gln	Lys	Gly	Pro	Glu	Val
1				5					10					15	
Thr	Ser	Asn	Ala	Ala	Leu	Thr	Leu	Arg	Asn	Phe	Cys	Asn	Trp	Gln	Lys
			20					25					30		
Gln	His	Asn	Pro	Pro	Ser	Asp	Arg	Asp	Ala	Glu	His	Tyr	Asp	Thr	Ala
		35				40					45				
Ile	Leu	Phe	Thr	Arg	Gln	Asp	Leu	Cys	Gly	Ser	Gln	Thr	Cys	Asp	Thr
	50					55					60				
Leu	Gly	Met	Ala	Asp	Val	Gly	Thr	Val	Cys	Asp	Pro	Ser	Arg	Ser	Cys
65					70					75					80
Ser	Val	Ile	Glu	Asp	Asp	Gly	Leu	Gln	Ala	Ala	Phe	Thr	Thr	Ala	His
				85					90					95	
Glu	Leu	Gly	His	Val	Phe	Asn	Met	Pro	His	Asp	Asp	Ala	Lys	Gln	Cys
			100					105					110		
Ala	Ser	Leu	Asn	Gly	Val	Asn	Gln	Asp	Ser	His	Met	Met	Ala	Ser	Met
		115					120					125			
Leu	Ser	Asn	Leu	Asp	His	Ser	Gln	Pro	Trp	Ser	Pro	Cys	Ser	Ala	Tyr
	130					135					140				
Met	Ile	Thr	Ser	Phe	Leu	Asp	Asn	Gly	His	Gly	Glu	Cys	Leu	Met	Asp
145					150					155					160
Lys	Pro	Gln	Asn	Pro	Ile	Gln	Leu	Pro	Gly	Asp	Leu	Pro	Gly	Thr	Ser
			165						170					175	
Tyr	Asp	Ala	Asn	Arg	Gln	Cys	Gln	Phe	Thr	Phe	Gly	Glu	Asp	Ser	Lys
			180					185					190		
His	Cys	Pro	Asp	Ala	Ala	Ser	Thr	Cys	Ser	Thr	Leu	Trp	Cys	Thr	Gly
		195					200					205			
Thr	Ser	Gly	Gly	Val	Leu	Val	Cys	Gln	Thr	Lys	His	Phe	Pro	Trp	Ala
	210					215					220				
Asp	Gly	Thr	Ser	Cys	Gly	Glu	Gly	Lys	Trp	Cys	Ile	Asn	Gly	Lys	Cys
225					230					235					240
Val	Asn	Lys	Thr	Asp	Arg	Lys	His	Phe	Asp	Thr	Pro	Phe	His	Gly	Ser
				245					250					255	
Trp	Gly	Met	Trp	Gly	Pro	Trp	Gly	Asp	Cys	Ser	Arg	Thr	Cys	Gly	Gly
		260					265						270		
Gly	Val	Gln	Tyr	Thr	Met	Arg	Glu	Cys	Asp	Asn	Pro	Val	Pro	Lys	Asn
		275					280					285			
Gly	Gly	Lys	Tyr	Cys	Glu	Gly	Lys	Arg	Val	Arg	Tyr	Arg	Ser	Cys	Asn
	290					295					300				
Leu	Glu	Asp	Cys	Pro	Asp	Asn	Asn	Gly	Lys	Thr	Phe	Arg	Glu	Glu	Gln
305					310					315					320
Cys	Glu	Ala	His	Asn	Glu	Phe	Ser	Lys	Ala	Ser	Phe	Gly	Ser	Gly	Pro
				325					330					335	
Ala	Val	Glu	Trp	Ile	Pro	Lys	Tyr	Ala	Gly	Val	Ser	Pro	Lys	Asp	Arg
			340					345					350		
Cys	Lys	Leu	Ile	Cys	Gln	Ala	Lys	Gly	Ile	Gly	Tyr	Phe	Phe	Val	Leu
		355					360					365			
Gln	Pro	Lys	Val	Val	Asp	Gly	Thr	Pro	Cys	Ser	Pro	Asp	Ser	Thr	Ser
	370					375					380				
Val	Cys	Val	Gln	Gly	Gln	Cys	Val	Lys	Ala	Gly	Cys	Asp	Arg	Ile	Ile
385					390					395					400
Asp	Ser	Lys	Lys	Lys	Phe	Asp	Lys	Cys	Gly	Val	Cys	Gly	Gly	Asn	Gly
				405					410					415	
Ser	Thr	Cys	Lys	Lys	Ile	Ser	Gly	Ser	Val	Thr	Ser	Ala	Lys	Pro	Gly
			420					425					430		
Tyr	His	Asp	Ile	Ile	Thr	Ile	Pro	Ile	Gly	Ala	Thr	Asn	Ile	Glu	Val
		435					440					445			
Lys	Gln	Arg	Asn	Gln	Arg	Gly	Ser	Arg	Asn	Asn	Gly	Ser	Phe	Leu	Ala

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      450              455              460
Ile Lys Ala Ala Asp Gly Thr Tyr Ile Leu Asn Gly Asp Tyr Thr Leu
465              470              475              480
Ser Thr Leu Glu Gln Asp Ile Met Tyr Lys Gly Val Val Leu Arg Tyr
      485              490              495
Ser Gly Ser Ser Ala Ala Leu Glu Arg Ile Arg Ser Phe Ser Pro Leu
      500              505              510
Lys Glu Pro Leu Thr Ile Gln Val Leu Thr Val Gly Asn Ala Leu Arg
      515              520              525
Pro Lys Ile Lys Tyr Thr Tyr Phe Val Lys Lys Lys Lys Glu Ser Phe
      530              535              540
Asn Ala Ile Pro Thr Phe Ser Ala Trp Val Ile Glu Glu Trp Gly Glu
545              550              555              560
Cys Ser Lys Thr Cys Gly Lys Gly Tyr Lys Lys Arg Ser Leu Lys Cys
      565              570              575
Leu Ser His Asp Gly Gly Val Leu Ser His Glu Ser Cys Asp Pro Leu
      580              585              590
Lys Lys Pro Lys His Phe Ile Asp Phe Cys Thr Met Ala Glu Cys Ser
      595              600              605

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<210> 9
<211> 3145
<212> DNA
<213> Mus musculus

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<220>
<221> CDS
<222> (9)...(1562)

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      1              5              10

atg gac aag ccc cag aat cca atc aag ctc cct tct gat ctt ccc ggt      98
Met Asp Lys Pro Gln Asn Pro Ile Lys Leu Pro Ser Asp Leu Pro Gly
      15              20              25              30

acc ttg tac gat gcc aac cgc cag tgt cag ttt aca ttc gga gag gaa      146
Thr Leu Tyr Asp Ala Asn Arg Gln Cys Gln Phe Thr Phe Gly Glu Glu
      35              40              45

tcc aag cac tgc cct gat gca gcc agc aca tgt act acc ctg tgg tgc      194
Ser Lys His Cys Pro Asp Ala Ala Ser Thr Cys Thr Thr Leu Trp Cys
      50              55              60

act ggc acc tcc ggt ggc tta ctg gtg tgc caa aca aaa cac ttc cct      242
Thr Gly Thr Ser Gly Gly Leu Leu Val Cys Gln Thr Lys His Phe Pro
      65              70              75

tgg gca gat ggc acc agc tgt gga gaa ggg aag tgg tgt gtc agt ggc      290
Trp Ala Asp Gly Thr Ser Cys Gly Glu Gly Lys Trp Cys Val Ser Gly
      80              85              90

aag tgc gtg aac aag aca gac atg aag cat ttt gct act cct gtt cat      338
Lys Cys Val Asn Lys Thr Asp Met Lys His Phe Ala Thr Pro Val His
      95              100              105              110

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gga agc tgg gga cca tgg gga ccg tgg gga gac tgc tca aga acc tgt	386
Gly Ser Trp Gly Pro Trp Gly Pro Trp Gly Asp Cys Ser Arg Thr Cys	
115 120 125	
ggt ggt gga gtt caa tac aca atg aga gaa tgt gac aac cca gtc cca	434
Gly Gly Gly Val Gln Tyr Thr Met Arg Glu Cys Asp Asn Pro Val Pro	
130 135 140	
aag aac gga ggg aag tac tgt gaa ggc aaa cga gtc cgc tac agg tcc	482
Lys Asn Gly Gly Lys Tyr Cys Glu Gly Lys Arg Val Arg Tyr Arg Ser	
145 150 155	
tgt aac atc gag gac tgt cca gac aat aac gga aaa acg ttc aga gag	530
Cys Asn Ile Glu Asp Cys Pro Asp Asn Asn Gly Lys Thr Phe Arg Glu	
160 165 170	
gag cag tgc gag gcg cac aat gag ttt tcc aaa gct tcc ttt ggg aat	578
Glu Gln Cys Glu Ala His Asn Glu Phe Ser Lys Ala Ser Phe Gly Asn	
175 180 185 190	
gag ccc act gta gag tgg aca ccc aag tac gcc ggc gtc tcg cca aag	626
Glu Pro Thr Val Glu Trp Thr Pro Lys Tyr Ala Gly Val Ser Pro Lys	
195 200 205	
gac agg tgc aag ctc acc tgt gaa gcc aaa ggc att ggc tac ttt ttc	674
Asp Arg Cys Lys Leu Thr Cys Glu Ala Lys Gly Ile Gly Tyr Phe Phe	
210 215 220	
gtc tta cag ccc aag gtt gta gat ggc act ccc tgt agt cca gac tct	722
Val Leu Gln Pro Lys Val Val Asp Gly Thr Pro Cys Ser Pro Asp Ser	
225 230 235	
acc tct gtc tgt gtg caa ggg cag tgt gtg aaa gct ggc tgt gat cgc	770
Thr Ser Val Cys Val Gln Gly Gln Cys Val Lys Ala Gly Cys Asp Arg	
240 245 250	
atc ata gac tcc aaa aag aag ttt gat aag tgt ggc gtt tgt gga gga	818
Ile Ile Asp Ser Lys Lys Lys Phe Asp Lys Cys Gly Val Cys Gly Gly	
255 260 265 270	
aac ggt tcc aca tgc aag aag atg tca gga ata gtc act agt aca aga	866
Asn Gly Ser Thr Cys Lys Lys Met Ser Gly Ile Val Thr Ser Thr Arg	
275 280 285	
cct ggg tat cat gac att gtc aca att cct gct gga gcc acc aac att	914
Pro Gly Tyr His Asp Ile Val Thr Ile Pro Ala Gly Ala Thr Asn Ile	
290 295 300	
gaa gtg aaa cat cgg aat caa agg ggg tcc aga aac aat ggc agc ttt	962
Glu Val Lys His Arg Asn Gln Arg Gly Ser Arg Asn Asn Gly Ser Phe	
305 310 315	
ctg gct att aga gcc gct gat ggt acc tat att ctg aat gga aac ttc	1010
Leu Ala Ile Arg Ala Ala Asp Gly Thr Tyr Ile Leu Asn Gly Asn Phe	
320 325 330	

act ctg tcc aca cta gag caa gac ctc acc tac aaa ggt act gtc tta 1058  
 Thr Leu Ser Thr Leu Glu Gln Asp Leu Thr Tyr Lys Gly Thr Val Leu  
 335 340 345 350

agg tac agt ggt tcc tcg gct gcg ctg gaa aga atc cgc agc ttt agt 1106  
 Arg Tyr Ser Gly Ser Ser Ala Ala Leu Glu Arg Ile Arg Ser Phe Ser  
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cca ctc aaa gaa ccc tta acc atc cag gtt ctt atg gta ggc cat gct 1154  
 Pro Leu Lys Glu Pro Leu Thr Ile Gln Val Leu Met Val Gly His Ala  
 370 375 380

ctc cga ccc aaa att aaa ttc acc tac ttt atg aag aag aag aca gag 1202  
 Leu Arg Pro Lys Ile Lys Phe Thr Tyr Phe Met Lys Lys Lys Thr Glu  
 385 390 395

tca ttc aac gcc att ccc aca ttt tct gag tgg gtg att gaa gag tgg 1250  
 Ser Phe Asn Ala Ile Pro Thr Phe Ser Glu Trp Val Ile Glu Glu Trp  
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ggg gag tgc tcc aag aca tgc ggc tca ggt tgg cag aga aga gta gtg 1298  
 Gly Glu Cys Ser Lys Thr Cys Gly Ser Gly Trp Gln Arg Arg Val Val  
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cag tgc aga gac att aac gga cac cct gct tcc gaa tgt gca aag gaa 1346  
 Gln Cys Arg Asp Ile Asn Gly His Pro Ala Ser Glu Cys Ala Lys Glu  
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gtg aag cca gcc agt acc aga cct tgt gca gac ctt cct tgc cca cac 1394  
 Val Lys Pro Ala Ser Thr Arg Pro Cys Ala Asp Leu Pro Cys Pro His  
 450 455 460

tgg cag gtg ggg gat tgg tca cca tgt tcc aaa act tgc ggg aag ggt 1442  
 Trp Gln Val Gly Asp Trp Ser Pro Cys Ser Lys Thr Cys Gly Lys Gly  
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 Tyr Lys Lys Arg Thr Leu Lys Cys Val Ser His Asp Gly Gly Val Leu  
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tca aat gag agc tgt gat cct ttg aag aag cca aag cat tac att gac 1538  
 Ser Asn Glu Ser Cys Asp Pro Leu Lys Lys Pro Lys His Tyr Ile Asp  
 495 500 505 510

ttt tgc aca ctg aca cag tgc agt taagaggcgt tagaggacaa ggtagcgtgg 1592  
 Phe Cys Thr Leu Thr Gln Cys Ser  
 515

ggaggggctg atacactgag tgcaagagta ctggagggat ccagtgagtc aaaccagtaa 1652  
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 aactaccct gccagttaca ttctgataag gtagttaatg aggcacagta gcatctgaaa 1772  
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<211> 518
<212> PRT
<213> Mus musculus
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Tyr	Asp	Ala	Asn	Arg	Gln	Cys	Gln	Phe	Thr	Phe	Gly	Glu	Glu	Ser	Lys
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His	Cys	Pro	Asp	Ala	Ala	Ser	Thr	Cys	Thr	Thr	Leu	Trp	Cys	Thr	Gly
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Thr	Ser	Gly	Gly	Leu	Leu	Val	Cys	Gln	Thr	Lys	His	Phe	Pro	Trp	Ala
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Asp	Gly	Thr	Ser	Cys	Gly	Glu	Gly	Lys	Trp	Cys	Val	Ser	Gly	Lys	Cys
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Val	Asn	Lys	Thr	Asp	Met	Lys	His	Phe	Ala	Thr	Pro	Val	His	Gly	Ser
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Cys	Glu	Ala	His	Asn	Glu	Phe	Ser	Lys	Ala	Ser	Phe	Gly	Asn	Glu	Pro
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Thr	Val	Glu	Trp	Thr	Pro	Lys	Tyr	Ala	Gly	Val	Ser	Pro	Lys	Asp	Arg
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Cys	Lys	Leu	Thr	Cys	Glu	Ala	Lys	Gly	Ile	Gly	Tyr	Phe	Phe	Val	Leu
		210				215					220				
Gln	Pro	Lys	Val	Val	Asp	Gly	Thr	Pro	Cys	Ser	Pro	Asp	Ser	Thr	Ser
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Val	Cys	Val	Gln	Gly	Gln	Cys	Val	Lys	Ala	Gly	Cys	Asp	Arg	Ile	Ile
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Asp	Ser	Lys	Lys	Lys	Phe	Asp	Lys	Cys	Gly	Val	Cys	Gly	Gly	Asn	Gly

260 265 270  
 Ser Thr Cys Lys Lys Met Ser Gly Ile Val Thr Ser Thr Arg Pro Gly  
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 Tyr His Asp Ile Val Thr Ile Pro Ala Gly Ala Thr Asn Ile Glu Val  
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 Lys His Arg Asn Gln Arg Gly Ser Arg Asn Asn Gly Ser Phe Leu Ala  
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 Ile Arg Ala Ala Asp Gly Thr Tyr Ile Leu Asn Gly Asn Phe Thr Leu  
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 Ser Thr Leu Glu Gln Asp Leu Thr Tyr Lys Gly Thr Val Leu Arg Tyr  
 340 345 350  
 Ser Gly Ser Ser Ala Ala Leu Glu Arg Ile Arg Ser Phe Ser Pro Leu  
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 Lys Glu Pro Leu Thr Ile Gln Val Leu Met Val Gly His Ala Leu Arg  
 370 375 380  
 Pro Lys Ile Lys Phe Thr Tyr Phe Met Lys Lys Lys Thr Glu Ser Phe  
 385 390 395 400  
 Asn Ala Ile Pro Thr Phe Ser Glu Trp Val Ile Glu Glu Trp Gly Glu  
 405 410 415  
 Cys Ser Lys Thr Cys Gly Ser Gly Trp Gln Arg Arg Val Val Gln Cys  
 420 425 430  
 Arg Asp Ile Asn Gly His Pro Ala Ser Glu Cys Ala Lys Glu Val Lys  
 435 440 445  
 Pro Ala Ser Thr Arg Pro Cys Ala Asp Leu Pro Cys Pro His Trp Gln  
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 Val Gly Asp Trp Ser Pro Cys Ser Lys Thr Cys Gly Lys Gly Tyr Lys  
 465 470 475 480  
 Lys Arg Thr Leu Lys Cys Val Ser His Asp Gly Gly Val Leu Ser Asn  
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 ccgagctcct gccctagagt cgactgggct cccgcccgcg tgggacagac agacggacag 180  
 ccagccctgc gagggcgcg ggaccgggcg gaggtgttgt aggaggagac cgaggagggg 240  
 ggctgggctg gggctggggc cgcgcgggca agagagacat gcgattggtg accaagccga 300  
 gcggacggac agcgcgcccg ag atg cag gtg agc gag agg atg ctg gca ggg 352  
 Met Gln Val Ser Glu Arg Met Leu Ala Gly  
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ggt atg aga agc atg ccc agc ccc ctc ctg gcc tgc tgg cag ccc atc 400  
 Gly Met Arg Ser Met Pro Ser Pro Leu Leu Ala Cys Trp Gln Pro Ile  
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ctc	ctg	ctg	gta	ctg	ggc	tca	gtg	ctg	tca	ggc	tct	gct	aca	ggc	tgc	448
Leu	Leu	Leu	Val	Leu	Gly	Ser	Val	Leu	Ser	Gly	Ser	Ala	Thr	Gly	Cys	
			30					35					40			
ccg	ccc	cgc	tgc	gag	tgc	tca	gcg	cag	gac	cga	gcc	gtg	ctc	tgc	cac	496
Pro	Pro	Arg	Cys	Glu	Cys	Ser	Ala	Gln	Asp	Arg	Ala	Val	Leu	Cys	His	
		45					50					55				
cgc	aaa	cgc	ttt	gtg	gcg	gtg	ccc	gag	ggc	atc	ccc	acc	gag	act	cgc	544
Arg	Lys	Arg	Phe	Val	Ala	Val	Pro	Glu	Gly	Ile	Pro	Thr	Glu	Thr	Arg	
	60						65				70					
ctg	ctg	gac	ctg	ggc	aaa	aac	cgc	atc	aag	aca	ctc	aac	cag	gac	gag	592
Leu	Leu	Asp	Leu	Gly	Lys	Asn	Arg	Ile	Lys	Thr	Leu	Asn	Gln	Asp	Glu	
	75				80					85					90	
ttt	gcc	agc	ttc	cca	cac	ctg	gag	gag	cta	gaa	ctc	aat	gaa	aac	atc	640
Phe	Ala	Ser	Phe	Pro	His	Leu	Glu	Glu	Leu	Glu	Leu	Asn	Glu	Asn	Ile	
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gtg	agc	gcc	gtg	gag	cca	ggc	gcc	ttc	aac	aac	ctc	ttc	aac	ctg	agg	688
Val	Ser	Ala	Val	Glu	Pro	Gly	Ala	Phe	Asn	Asn	Leu	Phe	Asn	Leu	Arg	
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act	ctg	ggg	ctg	cgc	agc	aac	cgc	ctg	aag	ctt	atc	ccg	ctg	ggc	gtc	736
Thr	Leu	Gly	Leu	Arg	Ser	Asn	Arg	Leu	Lys	Leu	Ile	Pro	Leu	Gly	Val	
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ttc	acc	ggc	ctc	agc	aac	ttg	acc	aag	ctg	gac	atc	agt	gag	aac	aag	784
Phe	Thr	Gly	Leu	Ser	Asn	Leu	Thr	Lys	Leu	Asp	Ile	Ser	Glu	Asn	Lys	
	140					145					150					
atc	gtc	atc	ctg	cta	gac	tac	atg	ttc	caa	gac	cta	tac	aac	ctc	aag	832
Ile	Val	Ile	Leu	Leu	Asp	Tyr	Met	Phe	Gln	Asp	Leu	Tyr	Asn	Leu	Lys	
	155				160					165					170	
tcg	ctg	gag	gtc	ggc	gac	aac	gac	ctc	gtc	tac	atc	tcc	cat	cga	gcc	880
Ser	Leu	Glu	Val	Gly	Asp	Asn	Asp	Leu	Val	Tyr	Ile	Ser	His	Arg	Ala	
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ttc	agc	ggc	ctc	aac	agc	ctg	gaa	cag	ctg	acg	ctg	gag	aaa	tgc	aat	928
Phe	Ser	Gly	Leu	Asn	Ser	Leu	Glu	Gln	Leu	Thr	Leu	Glu	Lys	Cys	Asn	
			190					195					200			
ctg	acc	tcc	atc	ccc	acg	gag	gcg	ctc	tcc	cac	ctg	cac	ggc	ctc	atc	976
Leu	Thr	Ser	Ile	Pro	Thr	Glu	Ala	Leu	Ser	His	Leu	His	Gly	Leu	Ile	
		205					210					215				
gtc	ctg	cgg	cta	cga	cat	ctc	aac	atc	aat	gcc	atc	agg	gac	tac	tcc	1024
Val	Leu	Arg	Leu	Arg	His	Leu	Asn	Ile	Asn	Ala	Ile	Arg	Asp	Tyr	Ser	
	220					225					230					
ttc	aag	agg	ctg	tac	cga	ctt	aag	gtc	tta	gag	atc	tcc	cac	tgg	ccc	1072
Phe	Lys	Arg	Leu	Tyr	Arg	Leu	Lys	Val	Leu	Glu	Ile	Ser	His	Trp	Pro	
	235				240					245					250	
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Ser Val Leu Ser Gly Ser Ala Thr Gly Cys Pro Pro Arg Cys Glu Cys  
35 40 45  
Ser Ala Gln Asp Arg Ala Val Leu Cys His Arg Lys Arg Phe Val Ala  
50 55 60  
Val Pro Glu Gly Ile Pro Thr Glu Thr Arg Leu Leu Asp Leu Gly Lys  
65 70 75 80  
Asn Arg Ile Lys Thr Leu Asn Gln Asp Glu Phe Ala Ser Phe Pro His  
85 90 95  
Leu Glu Glu Leu Glu Leu Asn Glu Asn Ile Val Ser Ala Val Glu Pro  
100 105 110  
Gly Ala Phe Asn Asn Leu Phe Asn Leu Arg Thr Leu Gly Leu Arg Ser  
115 120 125  
Asn Arg Leu Lys Leu Ile Pro Leu Gly Val Phe Thr Gly Leu Ser Asn  
130 135 140  
Leu Thr Lys Leu Asp Ile Ser Glu Asn Lys Ile Val Ile Leu Leu Asp  
145 150 155 160  
Tyr Met Phe Gln Asp Leu Tyr Asn Leu Lys Ser Leu Glu Val Gly Asp  
165 170 175  
Asn Asp Leu Val Tyr Ile Ser His Arg Ala Phe Ser Gly Leu Asn Ser  
180 185 190  
Leu Glu Gln Leu Thr Leu Glu Lys Cys Asn Leu Thr Ser Ile Pro Thr  
195 200 205  
Glu Ala Leu Ser His Leu His Gly Leu Ile Val Leu Arg Leu Arg His  
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Leu Asn Ile Asn Ala Ile Arg Asp Tyr Ser Phe Lys Arg Leu Tyr Arg  
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Met Ala Gly Ser

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ccg ctg ctc tgc ggg ccg cgg gcc ggg ggc gtc ggc att ttg gtg ctg      165
Pro Leu Leu Cys Gly Pro Arg Ala Gly Gly Val Gly Ile Leu Val Leu
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ctg ctc ttg ggc ctt ctg agg ctg ccc ccc acc ctg tca gcg agg ccc      213
Leu Leu Leu Gly Leu Leu Arg Leu Pro Pro Thr Leu Ser Ala Arg Pro
      25              30              35

gtg aag gag ccc cgc agt ctg agc gca gca tcc gcg ccc ttg gtt gag      261
Val Lys Glu Pro Arg Ser Leu Ser Ala Ala Ser Ala Pro Leu Val Glu
      40              45              50

acg agc act ccc ctc cgc ttg cgt cgg gcc gtg ccc cga gga gag gcg      309
Thr Ser Thr Pro Leu Arg Leu Arg Ala Val Pro Arg Gly Glu Ala
      55              60              65

gcg ggt gcg gtg cag gag ctg gcg cgg gcg ctg gcg cac ctg ctg gag      357
Ala Gly Ala Val Gln Glu Leu Ala Arg Ala Leu Ala His Leu Leu Glu
      70              75              80

gcc gag aga cag gaa cgc gcg cgt gct gag gcg cag gag gct gag gat      405
Ala Glu Arg Gln Glu Arg Ala Arg Ala Glu Ala Gln Glu Ala Glu Asp
      85              90              95              100

cag cag gcg cgt gtc ctg gcg cag ctg ctg cgc gcc tgg ggc tct ccg      453
Gln Gln Ala Arg Val Leu Ala Gln Leu Leu Arg Ala Trp Gly Ser Pro
      105              110              115

cgt gcc tcg gac ccg ccc ttg gcc ccc gac gat gac ccg gac gct cca      501
Arg Ala Ser Asp Pro Pro Leu Ala Pro Asp Asp Asp Pro Asp Ala Pro
      120              125              130

gct gca cag ctc gcc cgt gct ctg ctc cga gct cgc cta gac ccc gcc      549
Ala Ala Gln Leu Ala Arg Ala Leu Leu Arg Ala Arg Leu Asp Pro Gly
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ccc cag tgt atg atg atg gcc cca ctg gcc cag acg tcg agg atg ccg      597
Pro Gln Cys Met Met Met Ala Pro Leu Ala Gln Thr Ser Arg Met Pro
      150              155              160

gcg acg aga ctc ctg acg tgg acc ctg agc tgc tgaggtactt gctagggcgg      650
Ala Thr Arg Leu Leu Thr Trp Thr Leu Ser Cys
165              170              175

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gcgctgtgc atcctgcacg ccctggaacc caggagcgcc ccagcaaccc tgactccctg      890
ccagcacgtc caaggctgct taccacagca acctcccatc ccctgagccc tcaataaatg      950
ccatctgtag caaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa      1010
aaaaaaaaaa aaaaaaaa

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&lt;211&gt; 175

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 14

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Ser	Ala	Arg	Pro	Val	Lys	Glu	Pro	Arg	Ser	Leu	Ser	Ala	Ala	Ser	Ala
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Pro	Leu	Val	Glu	Thr	Ser	Thr	Pro	Leu	Arg	Leu	Arg	Arg	Ala	Val	Pro
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Arg	Gly	Glu	Ala	Ala	Gly	Ala	Val	Gln	Glu	Leu	Ala	Arg	Ala	Leu	Ala
65					70					75				80	
His	Leu	Leu	Glu	Ala	Glu	Arg	Gln	Glu	Arg	Ala	Arg	Ala	Glu	Ala	Gln
				85					90					95	
Glu	Ala	Glu	Asp	Gln	Gln	Ala	Arg	Val	Leu	Ala	Gln	Leu	Leu	Arg	Ala
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Trp	Gly	Ser	Pro	Arg	Ala	Ser	Asp	Pro	Pro	Leu	Ala	Pro	Asp	Asp	Asp
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Pro	Asp	Ala	Pro	Ala	Ala	Gln	Leu	Ala	Arg	Ala	Leu	Leu	Arg	Ala	Arg
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Leu	Asp	Pro	Gly	Pro	Gln	Cys	Met	Met	Met	Ala	Pro	Leu	Ala	Gln	Thr
145					150					155					160
Ser	Arg	Met	Pro	Ala	Thr	Arg	Leu	Leu	Thr	Trp	Thr	Leu	Ser	Cys	
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